

Remarks

Claims 1-20 were initially pending in the subject application. By way of the amendment of this date, claims 12-14 and 19 have been canceled, claims 1, 5, 15, and 18 amended, and claims 21 and 22 have been added. Therefore, claims 1-11, 15-18, and 20-22 are now before the Examiner for consideration. The subject invention provides unique and advantageous adsorbent media comprising particles of chopped cellulosic sponge material carrying functional groups, wherein the particles are of heterogeneous size. The subject invention also provides unique and advantageous methods for purification of DNA from aqueous samples using the adsorbent media of the subject invention. Certain of the claims have been amended for the purpose of expediting the patent application process in a manner consistent with the Patent and Trademark Office Patent Business Goals (PBG), 65 Fed. Reg. 54603 (September 8, 2000), advance prosecution, and facilitate the business interests of Applicant(s). Support for these new claims and the amendments to the pending claims can be found throughout the subject specification including, for example, page 3, lines 4-28. Favorable consideration of the claims now presented, in view of the remarks and amendments set forth herein, is earnestly solicited.

Claims 5, 7, and 18 have been rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter regarded as the invention. Applicants respectfully traverse.

Claim 5 has been rejected on the grounds that the claim is confusing in view of its recitation

respectfully submit that claim 1 is not so limited. As the Patent Office will note, the specification indicates that "cellulosic sponge material, from which the novel medium is derived, is typically a naturally-occurring polymer such as cellulose or agarose" (see page 3, lines 4-6). When the specification states the meaning that a term in the claim is intended to have, the claim is examined using that meaning. *In re Zletz*, 893 F.2d 319, 13 U.S.P.Q.2d 1320 (Fed. Cir. 1989). Additionally, it is respectfully submitted that the acceptability of the claim language depends on whether one of ordinary skill in the art would understand what is claimed, in light of the specification. In the case of the instant invention, it is respectfully submitted that one skilled in the art would understand what is claimed in light of the specification (*i.e.*, that cellulosic sponge material is typically a naturally

occurring polymer such as cellulose or agarose). Accordingly, reconsideration and withdrawal of the rejection is respectfully requested.

Claim 7 has been rejected on the grounds that the recitation of "derived from DEAE" is uncertain as to meaning or scope. Applicants respectfully traverse. It is respectfully submitted that the claim is clear to one skilled in the relevant art and that such an individual would recognize that the claimed functional groups are derivatives of diethylaminoethane (DEAE). Accordingly, reconsideration and withdrawal of the rejection is respectfully requested.

Claim 18 has been rejected on the grounds that it is confusing in its originally presented form and the Patent Office has suggested an amendment to the claims that has been adopted by Applicants. Accordingly, it is respectfully submitted that this rejection is moot and its withdrawal is respectfully requested.

Claims 1-20 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Bruce *et al.* (WO 94/11103) in view of Sanderson *et al.* (WO 91/17830). The Office Action argues that that it would have been obvious to substitute the cellulose sponge of Sanderson *et al.* for the polymer based particles of Bruce *et al.* to obtain the adsorbent properties of the cellulose sponge. The Office Action further argues that the provision of a water retention of slightly above 6 would have been within the skill of the art and that providing a preferred optimum particle size, as in claim 8, would have been a matter of choice depending merely on individual preference. Applicants respectfully traverse.

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. See M.P.E.P § 2143 *et seq.*

It is respectfully submitted that the combination of references fails to establish the *prima facie* obviousness of the claimed invention in that it fails to teach a number of limitations of the claimed invention. For example, the combination fails to teach an adsorbent medium comprising particles of a chopped cellulosic sponge material carrying functional groups, wherein the particles are of heterogeneous particle size and are obtained by chopping a larger block of the cellulosic sponge

material (previously pending claims 12-13, now incorporated into independent claim 1). Bruce *et al.* disclose preformed particles and Sanderson *et al.* teach the use of a block of sponge material. Neither reference teaches the use of chopped cellulosic sponge material carrying functional groups, wherein the particles are of heterogeneous particle size and are obtained by chopping a larger block of the cellulosic sponge material. Accordingly, it is respectfully submitted that the combination of references fails to establish a *prima facie* case of obviousness for the claimed invention and the reconsideration and withdrawal of the rejection is respectfully requested.

Applicants also wish to point out that the claimed invention also exhibits improved properties as compared to prior art medium, such as that of Bruce *et al.* and Sanderson *et al.* The claimed adsorbent medium comprising particles of a chopped cellulosic sponge material carrying functional groups, wherein the particles are of heterogeneous particle size and are obtained by chopping a larger block of the cellulosic sponge material exhibits improved flow properties and binding capacity as compared to the prior art medium of record. The chopped cellulosic sponge material of the subject invention is a disrupted adsorbent that has more accessible binding sites within the interconnected pores of the media, greater surface area for binding substances, and greater binding capacity for materials as compared to non-chopped cellulosic material, such as the sponge of Sanderson *et al.* or the polymers of Bruce *et al.* Additionally, the claimed invention exhibits improved flow properties as compared to prior art adsorbent medium. For example, medium of the subject invention exhibited a flow rate of 116 column volumes per hour whereas flow rates for non-chopped medium exhibited

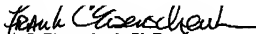
respectfully submitted that the claimed invention provides unexpectedly better flow rates as compared to prior art matrices, such as those of Sanderson *et al.* and Bruce *et al.* and that, even assuming *arguendo* that a case of *prima facie* obviousness has been established, the claimed invention is patentable over this combination of references in view of these unexpectedly superior characteristics.

With respect to the contention that the ability to provide a water retention of slightly above 6 would have been within the skill of the art and that the claimed particle sizes are a matter of choice for the practitioner, Applicants respectfully submit that a statement that modifications of the prior art to meet the claimed invention would have been well within the ordinary skill of the art at the time the

claimed invention was made is not sufficient to establish a *prima facie* case of obviousness. *Ex parte Levensgood*, 28 U.S.P.Q.2d 1300 (Bd. Pat. App. & Inter. 1993). See also *In re Kotzab*, 217 F.3d 1365, 1371, 55 U.S.P.Q.2d 1313, 1318 (Fed. Cir. 2000). In the case of the instant application, it is respectfully submitted that no motivation is provided as to why one skilled in the art would have provided an adsorbent material having a water retention value in excess of six in view of the teachings of the references nor is there any evidence of record that establishes why one skilled in the art would have been motivated to provide particles having the claimed sizes. Accordingly, it is respectfully submitted that a *prima facie* case of obviousness has not been established with respect to the invention of claims 3 and 8 and withdrawal of the rejection is respectfully requested. Additionally, Applicants respectfully request that evidence supporting these assertions (set forth in the Office Action of December 19, 2002) be provided should the rejection be maintained.

In view of the foregoing remarks and the amendments to the claims, Applicants believe that the pending claims are now in condition for allowance, and such action is respectfully requested. The Commissioner is hereby authorized to charge any fees under 37 C.F.R. §§ 1.16 or 1.17 as required by this paper to Deposit Account 19-0065.

Applicants also invite the Examiner to call the undersigned if clarification is needed on any of this response, or if the Examiner believes a telephone interview would expedite the prosecution of the subject application to completion.



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